CLAIMS

What is claimed is:

1. A method of call recovery in a wireless communication network, comprising:

reserving a forward link channel for use as a call recovery channel;

configuring the call recovery channel for simultaneous rescue of multiple mobile stations; and

multiplexing rescue messages for multiple mobile stations onto the call recovery channel for transmission to mobile stations in need of rescue.

2. The method of claim 1 wherein the call recovery channel is a dedicated channel.

3. The method of claim 1 wherein the call recovery channel is a dedicated Walsh code channel.

4. The method of claim 1 wherein configuring the call recovery channel for simultaneous rescue of multiple mobile stations comprises dividing the call recovery channel into a plurality of time slots.

5. The method of claim 4 wherein multiplexing rescue messages for multiple mobile stations onto the call recovery channel for transmission to mobile stations in need of rescue comprises transmitting rescue messages for different mobile stations in different time slots.

6. The method of claim 5 wherein multiplexing rescue messages for multiple mobile stations onto the call recovery channel for transmission to mobile stations in need of rescue further comprises encoding each rescue messages with a code associated with a target mobile station.

7. The method of claim 5 wherein transmitting rescue messages for different mobile stations in different time slots comprises selecting a time slot for each mobile station in need of rescue.

8. The method of claim 7 wherein time slots are selected based on the product of a hashing algorithm.

9. A base station in a mobile communication network having rescue capability, comprising:

transceivers for communicating with one or more mobile stations over forward and reverse link channels;

a forward call recovery channel for communicating with mobile stations in need of rescue, said forward call recovery channel configured for simultaneous use by multiple mobile stations; and

a control unit operatively connected to the transceivers for multiplexing rescue messages to mobile stations in need of rescue onto the forward call recovery channel.

10. The base station of claim 9 wherein the forward call recovery channel is a dedicated channel.

11. The method of claim 10 wherein the call recovery channel is a dedicated Walsh code channel.

12. The base station of claim 9 wherein the call recovery channel is divided into a plurality of time slots.

13. The base station of claim 12 wherein the control unit multiplexes rescue messages onto the call recovery channel by transmitting rescue messages for different mobile stations in different time slots.

14. The base station of claim 13 wherein the control unit encodes rescue messages with a code corresponding to a target mobile station.

15. The base station of claim 13 wherein the control unit selects a time slot for each mobile station in need of rescue.

16. The base station of claim 15 wherein the control unit selects time slots for mobile stations based on the product of a hashing algorithm.

17. A method of call recovery in a wireless communication network, comprising:

monitoring a signal quality indicator at a mobile station;

comparing the signal quality indicator to first and second thresholds;

transmitting a first rescue message to a first base station in response to the signal quality indicator reaching a first threshold; and

autonomously promoting one or more base stations into the mobile station's active set and sending a second rescue message to the first base station in response to the signal quality indicator reaching the second threshold; and

transmitting signals to the newly promoted base stations.

18. The method of claim 17 wherein the first rescue message is a pilot strength measurement message.

19. The method of claim 18 wherein the pilot strength measurement message includes an explicit indication that the first threshold has been reached.

20. The method of claim 17 wherein the second rescue message is a pilot strength measurement message including pilot strength measurements for the newly promoted base stations.

21. The method of claim 20 wherein the pilot strength measurement message includes an explicit indication that the second threshold has been reached..

22. A mobile station comprising:

a transceiver for communicating with one or more base stations in a mobile communication network; and

a control unit operatively connected to the transceiver for:

monitoring a signal quality indicator at a mobile station;

comparing the signal quality indicator to first and second thresholds;

transmitting a first rescue message to a first base station in response to the signal quality indicator reaching a first threshold; and

autonomously promoting one or more base stations into the mobile station's active set when the second threshold is reached and sending a second rescue message to the first base station in response to the signal quality indicator reaching the second threshold; and

transmitting signals to the newly promoted base stations.

23. The mobile station of claim 22 wherein the first rescue message is a pilot strength measurement message.

24. The mobile station of claim 23 wherein the pilot strength measurement message includes an explicit indication that the first threshold has been reached..

25. The mobile station of claim 22 wherein the second rescue message is a pilot strength measurement message including pilot strength measurements for the newly promoted base stations.

26. The method of claim 25 wherein the pilot strength measurement message includes an explicit indication that the first threshold has been reached.

27. A method of call recovery in a wireless communication network, comprising:

receiving an explicit rescue message from a mobile station at a base station; and

initiating a rescue procedure responsive to the explicit rescue message from the mobile station.

28. A method of call recovery comprising:

reserving a forward link channel for use as a call recovery channel;

configuring the call recovery channel for simultaneous rescue of multiple mobile stations;

detecting multiple mobile stations in need of rescue; and

for each mobile station:

selecting one or more rescue base stations notifying one or more rescue base stations to listen for transmissions from the mobile station;

receiving a pilot strength measurement message from the mobile station at a rescue base station; and

sending a handoff direction message to the mobile station over the forward call recovery channel.

29. The method of claim 28 wherein detecting multiple mobile stations in need of rescue comprises detecting a loss of signal from the mobile stations.

30. The method of claim 28 wherein detecting multiple mobile stations in need of rescue comprises receiving a rescue message from the mobile stations.

31. The method of claim 28 wherein detecting multiple mobile stations in need of rescue comprises detecting a quality of the communication link from the mobile stations.

32. The method of claim 28 wherein the call recovery channel is a dedicated channel.

33. The method of claim 32 wherein the call recovery channel is a Walsh code channel.

34. The method of claim 28 wherein configuring the call recovery channel for simultaneous rescue of multiple mobile stations comprises dividing the call recovery channel into a plurality of time slots.

35. The method of claim 28 wherein sending a handoff direction message to the mobile station over the forward call recovery channel, comprises multiplexing rescue messages for multiple mobile stations onto the call recovery channel for transmission to mobile stations in need of rescue.

36. The method of claim 35 wherein multiplexing rescue messages for multiple mobile stations onto the call recovery channel for transmission to mobile stations in need of rescue comprises transmitting rescue messages for different mobile stations in different time slots.

37. The method of claim 36 wherein multiplexing rescue messages for multiple mobile stations onto the call recovery channel for transmission to mobile stations in need of rescue further comprises encoding each rescue messages with a code associated with a target mobile station.

38. The method of claim 36 wherein transmitting rescue messages for different mobile stations in different time slots comprises selecting a time slot to each mobile station in need of rescue.

39. The method of claim 38 wherein time slots are selected based on the product of a hashing algorithm.